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the substance in the pan stirred until it is cool, so as to prevent its adhering to the bottom of the pan. This substance is now in a state fit to be used by the soap-maker in the same way they use other ashes, by bruising it small, and mixing it with quick-lime, properly slackened. If a manufactory for preparing the ash for sale should be established, the substance must be put into a reverberating furnace, and such heat applied as to render it fluid; in which state it may be kept half an hour with a moderate fire. During the half hour when fluid it is to be frequently stirred with an iron rake, made for the purpose. It may be stirred in the dry state a few times before it becomes fluid. It is drawn out of the furnace, in a fluid state, into an iron pot, placed under the door of the furnace. When cool it comes out of the pot a solid mass, similar in appearance to barilla. The same mode of procedure must be followed with all the other substances in the patent. Those of them which contain earth in a state of combination as the kelp does, must be bruised quite small, and dissolved in soft water; common salt must be dissolved.

Another part of the process is to be conducted in a reverberating furnace; the kelp is to be bruised as the soap-makers now grind it for use, and five or six hundred weight of it is to be introduced into the furnace along with two hundred weight of black peat moss, or earth or moss made small, and moistened with water, or fire is to be applied, and with a proper iron rake is to be stirred frequently, until the peat moss is consumed, which will be in six or eight hours; it is then to be drawn out, and is fit for use. All the other substances in the patent must be treated in the same manner.

Specification of the patent granted to Joseph Bagnal, of Walsall, in the

county of Stafford, saddlers' ironmonger; for a method of making bridle-bits, snaffles, and bradoons for horses, Martingale hooks, and rings of iron, steel, or other metals.—Dated July 11, 1811.

To all to whom these presents shall come, &c. Now know ye, that in compliance with the said proviso, I the said Joseph Bagnal do declare that the nature of my said invention, and the manner in which the same is to be performed, is described and ascertained as follows; that is to say: By making the rings, sides, or checks of such bridle-bits, snaffles, bradoons, martingale hooks, rings, or other work, with an opening or division thereon, guarded and closed by moveable levers, slides, pins, catches, rollers, or springs, whereby the heads, reins, harness, leather or other work, may be fastened, put on, and taken off such bridle bits, snaffles, bradoons, hooks, and rings or other work, without buckles or billets, or unstitching the same, for convenience and utility of cleaning, fresh polishing or plating the said bits or iron-work, and cleaning the reins, harness, leather or other work, separate from each other; and for altering, changing, repairing, and preserving the same, as occasion or necessity may require.

Observations by the Patentee.

The mode hitherto followed, of having the bit or snaffle fastened to the leather of the bridle by means of a buckle, has been found both troublesome and inconvenient, when it has been necessary to change the leather, or to remove the bit from the leather, for the purpose of cleaning either one or both of them, and has not unfrequently been productive of danger to the rider, either from the failure of the buckle-tongue, or the breaking of the leather, which had been weakened for the purpose of

admitting the buckle. It became, therefore, an object of no small importance to society, to find out some new method of uniting the bit and leather, which at the same time that it would prevent any accidents likely to arise from the cause above mentioned, would also add to the convenience and facility of separating the bit from the leather, for the purpose of cleaning, changing, &c. That the present invention will completely answer both these ends, I am confident no one will deny who makes a fair trial of the patent bit or snaffle. The substance of the leather remains uninjured, and in its full force, and a moment's examination will convince any one, that the leather and bit may be separated for the purpose of cleaning, changing, &c. with the greatest facility and expedition.

If applied to military purposes, this invention will be found of particular utility for the purpose of securing, with greater quickness and safety, any number of horses that may be left standing together, when the cavalry are obliged (as they are on certain occasions) to quit their horses for a time.

Again, in hunting it is well known that sportsmen are frequently obliged to lead their horses over fences, &c. which do not afford a safe or convenient leap; for assisting them in which, nothing can be better adapted than the present invention; which by enabling them to loose the leather from the bit on either side, gives them a leading rein sufficiently long for the purpose above mentioned.

The numerous accidents which so frequently arise in the driving of horses in harness, either from negligence in not buckling the reins with sufficient care, or from the weakened state of the buckle, or decayed state of the leather, will also be prevented by the adoption of the present invention.

The principle of the invention, however, is not confined to the bridle, but is capable of being extended to various parts of the horses' harness in place of buckles, and will be found to add greatly to the strength, convenience, and security of the same. It may also be applied with particular advantage to the martingale.

*On the Construction and Management of a Gigantic Rat-trap.
From the Letters and Papers of the Bath and West of England Society.*

Rats are such destructive vermin, and so peculiarly mischievous to the farmer, that every attempt to diminish their numbers must be acceptable to the Agricultural Society of Bath. The number may not only be greatly diminished, but the species in a manner annihilated, by the following easy method.

Let the outhouse, or other apartment infested with rats, be carefully examined, and all the apertures by which they enter closed, except one or two, in the most convenient situations.

These may be enlarged a little, and rendered more commodious: then let a trap-door be fitted to each, with a long string attached to it, so that the doors may, with the greatest facility, be at any time closed in a moment. The chamber immediately becomes what may be very properly called a gigantic rat-trap; into which the vermin may in a few days be decoyed in the greatest numbers, by feeding, and suffering them to feed therein at stated times undisturbed. If books of receipts may be credited, the rat is as partial to the smell of anise, as the cat to that of valerian; it will, therefore, be advisable, not only to feed them regularly a certain number of days with that kind of food for which